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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,603	03/08/2004	Alex Salnik	TWI-24910	1794
28584	7590	10/20/2006	EXAMINER	
STALLMAN & POLLOCK LLP 353 SACRAMENTO STREET SUITE 2200 SAN FRANCISCO, CA 94111			LYONS, MICHAEL A	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 10/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/796,603	Applicant(s) SALNIK ET AL.	
	Examiner Michael A. Lyons	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,8,10-12,14,15,18-20,22 and 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,8,10-12,15,18-20,22 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**Claims 1, 3-6, 8, 10-12, 14-15, 18-20, and 22-23 are rejected under 35 U.S.C. 101**

**because the claimed invention is directed to non-statutory subject matter.**

Regarding claims 1, 8, and 20, although the claims are directed to a statutory class of invention (in this case, a process), the claims are directed to a judicial exception; as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEP 2106), the claims must have a useful, concrete, and tangible result. Although the claims appear to be useful and concrete, there does not appear to be a tangible result claimed. Merely deriving the slope of a line in the I-Q plane fitted to the I and Q values that compose the measurements and comparing the derived slope with previously derived slopes associated with calibration samples having a known junction abruptness to derive an abruptness value for the measured sample would not appear to be sufficient to constitute a tangible result, since the outcome of the derivation and comparison steps have not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. As such, the subject matter of the claims is not patent eligible.

Regarding claims 5 and 12, although the claims are directed to a statutory class of invention (in this case, a process), the claims are directed to a judicial exception; as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEP 2106), the claims must have a useful, concrete, and tangible result. Although the claims appear to be useful and

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concrete, there does not appear to be a tangible result claimed. Merely filtering and processing the output signals to create in-phase (I) and quadrature (Q) components and analyzing the I and Q components derived from the two different measurement spots (claim 5) or the two different power densities (claim 12) to determine the abruptness of the junction, wherein the processing includes analyzing the slope of a line fit to the I and Q components derived from the measurement points as plotted in I and Q space would not appear to be sufficient to constitute a tangible result, since the outcome of the filtering, processing, and other steps set forth above have not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. As such, the subject matter of the claims is not patent eligible.

Regarding claim 18, although the claim is directed to a statutory class of invention (in this case, a process), the claim is directed to a judicial exception; as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEP 2106), the claims must have a useful, concrete, and tangible result. Although the claim appears to be useful and concrete, there does not appear to be a tangible result claimed. Merely fitting the measurements to a curve by using a function with two or more variables and characterizing the incompleteness of an annealing process and/or the presence of surface states by evaluating the curve would not appear to be sufficient to constitute a tangible result, since the outcome of the fitting and characterization steps set forth above have not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. As such, the subject matter of the claims is not patent eligible.

Regarding claim 22, although the claim is directed to a statutory class of invention (in this case, a process), the claim is directed to a judicial exception; as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEP 2106), the claims must have a useful, concrete, and tangible result. Although the claim appears to be useful and concrete, there does not appear to be a tangible result claimed. Merely calculating a decay factor based on the first and second measurements, and using the decay factor to evaluate the incompleteness of an annealing process and/or the presence of surface states of a semiconductor sample would not appear to be sufficient to constitute a tangible result, since the outcome of the calculation and evaluation steps set forth above have not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. As such, the subject matter of the claims is not patent eligible.

With further regard to the above, MPEP 2106 states, "In making this determination, the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather on whether the final result achieved by the claimed invention is 'useful, tangible, and concrete'".

As for the dependent claims (3-4, 6, 10-11, 14-15, 19, and 23), these claims merely serve to further limit the existing limitations of the claims on which they depend. As these claims fail to further provide a useful, tangible, and concrete result for the claims on which they depend, they are also rejected as being non-statutory for the reasons set forth above.

***Allowable Subject Matter***

**Claims 1, 3-6, 8, 10-12, 14-15, 18-20, and 22-23 would be allowable in view of the prior art should the 35 USC 101 rejections set forth above be properly overcome.**

The following is a statement of reasons for the indication of allowable subject matter:

As to claims 1, 8, and 20, the prior art of record, taken either alone or in combination, fails to disclose or render obvious a method of evaluating the abruptness of a junction in a semiconductor sample (claims 1 and 8) and a method of evaluating two or more properties of a junction formed in a semiconductor sample (claim 20), the method comprising, among other essential method steps, the derivation of a slope of a line in the in-phase and quadrature plane fitted to the in-phase and quadrature values that compose taken measurements, and using the derived slope in combination with a previously derived slope associated with a calibration sample having known junction abruptness, in combination with the rest of the limitations of the above claims.

As to claims 5 and 12, the prior art of record, taken either alone or in combination, fails to disclose or render obvious a method of evaluating the abruptness of a junction in a semiconductor sample, the method comprising, among other essential method steps, the further processing including the analysis of the slope or shape of a line fit to the in-phase and quadrature components derived from measurement points as plotted in in-phase and quadrature space, in combination with the rest of the limitations of the above claims.

As to claim 18, the prior art of record, taken either alone or in combination, fails to disclose or render obvious a method of characterizing a semiconductor sample, where the method comprises obtaining two or more measurements via the analysis of a reflected probe beam off a sample surface, with one measurement following previous measurements after a predetermined time, followed by the fitting the measurements to a curve using a function with two or more variables, and characterizing the incompleteness of an annealing process and/or the

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presence of surface states by the evaluation of the curve, in combination with the rest of the limitations of the above claims, and in the best understanding of the examiner.

As to claim 22, the prior art of record, taken either alone or in combination, fails to disclose or render obvious a method of evaluating the incompleteness of an annealing process and/or the presence of surface states of a semiconductor sample, the method comprising, among other essential method steps, obtaining a first and second measurement of the modulated changes in the reflected intensity of the probe beam induced by periodic excitation, calculating a delay factor based on the first and second measurements, and using the decay factor to evaluate the incompleteness of an annealing process and/or the presence of surface states of a semiconductor sample, in combination with the rest of the limitations of the above claim.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 3-6, 8, 10-12, 14-15, 18-20, and 22-23 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 571-272-2420. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "M. A. Lyons", followed by a large, stylized circular flourish or scribble.

Michael A. Lyons  
Patent Examiner  
October 13, 2006